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ROUTING AND RECORD SHEET

SUBJECT: (Optional)

FROM: OC-SP/EA

NO. SPM 8-882 25X1

DATE 12 December 1958

TO: (Officer designation, room number, and building)	DATE RECEIVED	DATE FORWARDED	OFFICER'S INITIALS	COMMENTS (Number each comment to show from whom to whom. Draw a line across column after each comment.)
1. C/EA/TS			Ed	
2.				
3. C/SP/EA		16 Dec	RWr	
4.				
5. C/OC-SP	DEC 16 1958	DEC 16 1958		
6.				
7. C/OC-E				An operational evaluation!
8. RDB	12/18	12/18		copy pulled/ R+D
9. R&D/Lab				— Action.
10.				Herb.
11. Don	12/23			Please bring this to
12. Elect Fab				staff meeting on 5
13. Mech Fab			RHZ	Jan for discussion
14.				
15. Rachel → 2510				

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Office Memorandum • UNITED STATES GOVERNMENT

SPM 8-882

TO : Chief, Engineering Staff, OC

DATE: 12 December 1958

FROM : Chief, Special Programs Staff, OC

SUBJECT: Audio Oscillators, IN-1 and IN-9

REF : Memo ENG-M8-1204, dated 12 November 1958

1. Transmitted herewith is the operational evaluation of the IN-1, audio oscillator. A review of current operational requirements indicate that nine (9) each units are required to fullfil ELINT commitments. It is requested that a locking device be incorporated in the nine units to prevent accidental mistuning. This feature is described in the evaluation report, paragraph III.

2. [redacted] 25X1
25X1

[redacted] The use of the IN-9 against a system with a PRF of 10 Kc/s could generate a readout error of 400 cycles and confuse the analyst. It is felt that the accuracy of the IN-9 is not adequate to satisfy current operational requirements for a reference tone oscillator, therefore, fabrication of additional IN-9 units is not requested.

[redacted] 25X1

Attachment:
As stated above

Distribution:
\ Orig & 1 w/att - Addressee

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IN-1 AUDIO OSCILLATOR

I. Description

The IN-1 Audio Oscillator is a self-contained battery operated unit which supplies a pulse output with repetition rates variable from 30 to 3000 cycles per second. A Veeder-Root type dial, with a numerical range from 000 to 999, is used in conjunction with a calibrated chart to indicate frequency. Two output jacks are provided to permit simultaneous record and aural monitor.

II. Tests Performed

The following tests were performed on the oscillator:

a) frequency stability

b) dial accuracy

c) dial resetability

d) mechanical inspection

The frequency stability of the unit was measured using a Berkeley Counter at frequencies chosen at random. The measurements were made over a period of five (5) to ten (10) minutes at room temperature only. The dial accuracy check was also made at room temperature using the frequency counter. The dial was set for a specific frequency, as determined from the calibrated chart, and the actual frequency was then read on the counter. The dial resetability test was performed after an elapsed time of twenty-four (24) hours, and consisted of resetting the dial to the original position and measuring the actual frequency. The results of these two tests are tabulated in table I. A mechanical inspection was made to determine the need for any changes to improve operational use of the oscillator.

III. Conclusions and Recommendations

The frequency stability of the audio oscillator was found to be very good, with the stability well within 1% at the frequencies checked. No frequency stability measurements were made at other than room temperature because of insufficient time available for test. The dial accuracy and the dial resetability are good enough for the operational usage intended for the equipment. The mechanical design of the unit appears to be rugged and capable of withstanding any anticipated rough handling. One of the features of the oscillator is its ability to be tuned with very slight pressure applied to the knob. While this feature may be desirable in many cases, it has the distinct disadvantage of being able to be moved unintentionally. It is recommended that a locking device be incorporated to permit holding the tuning knob at a specified frequency.

TABLE I

	Dial Reading	Frequency (Chart) (Cps)	Frequency (Meas.) (Cps)	Freq. (Meas.)
Band A				
	107.5	30.0	30.2	------
	352.0	40.0	40.0	39.9
	507.5	50.0	50.4	50.3
	607.5	60.0	60.5	60.4
	677.5	70.0	70.4	------
	730.0	80.0	80.3	------
	772.5	90.0	90.5	90.1
	807.5	100.0	101.2	101.0
	907.5	150.0	152.0	-------
	957.5	200.0	202.7	203.0
	987.5	250.0	254.2	253.9
Band B				
	47.5	300.0	303.6	303.4
	295.0	400.0	395.6	395.5
	465.0	500.0	501.6	501.3
	572.0	600.0	604.0	602.4
	647.5	700.0	699.5	701.4
	702.5	800.0	795.3	798.5
	745.0	900.0	879.0	890.2
	782.0	1000.0	983.6	992.9
	887.5	1500.0	1464.0	1470.0
	942.5	2000.0	1954.0	1959.0
	977.0	2500.0	2468.0	2469.0
	999.0	3000.0	2979.0	2977.0